



Florida Department of Environmental Protection

Biscayne Bay Aquatic Preserves Tuttle Basin Seagrass



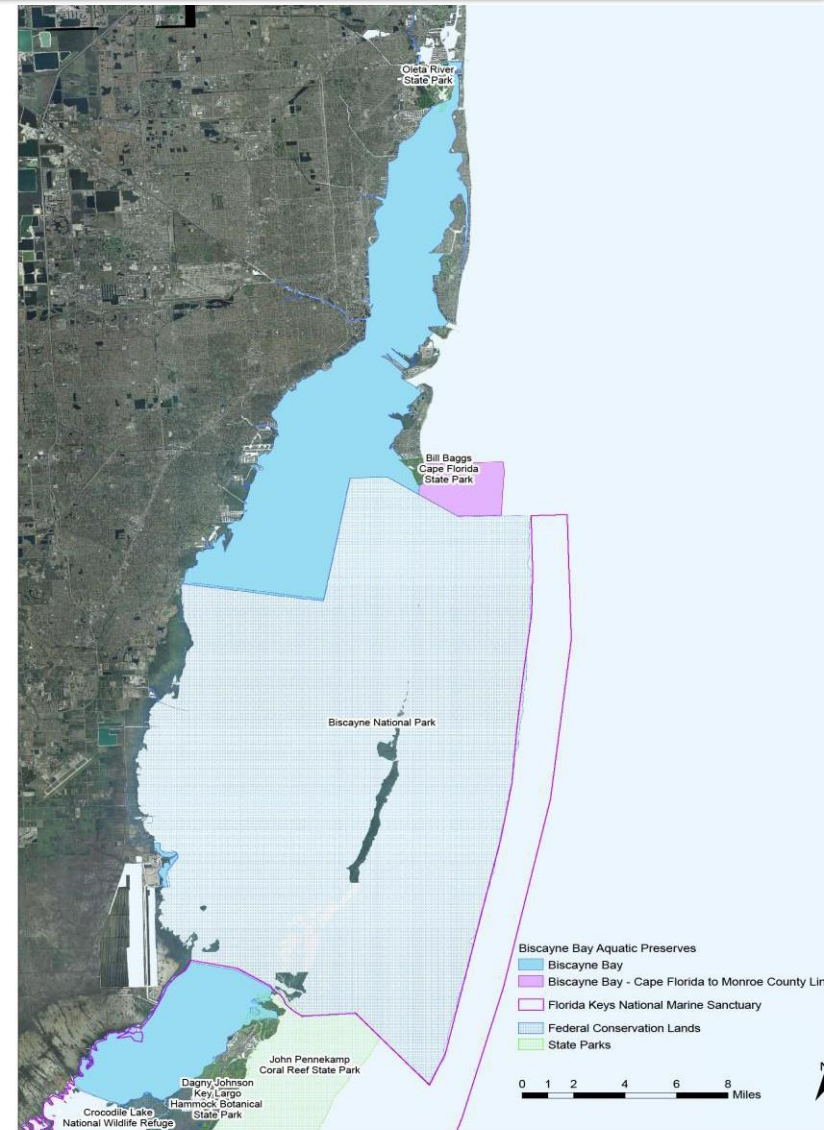
**June 21 2017
Eric Buck, Manager**





About Biscayne Bay

- Serves the most populous county in Florida – 2.6 million residents
- Thirty-five miles (56km) long
- Area = 428.6 sq. miles / 70k acres
- Fourteen municipalities along border
- More than 40 islands (mostly spoil)
- Protected by both an Aquatic Preserve and a National Park
- Part of the Kissimmee-Okeechobee-Everglades Watershed
- High diversity, species unique to area





Florida Department of Environmental Protection

- DEP protects our air, water, and land
- Three program areas:
 - Regulatory Programs
 - Land and Recreation
 - Water Policy and Ecosystem Restoration
- Florida Coastal Office: 4 Million acres
 - Forty-one Aquatic Preserves
 - National Estuarine Research Reserves
 - Outer Continental Shelf
 - FL Keys National Marine Sanctuary
 - Coral Reef Conservation Program





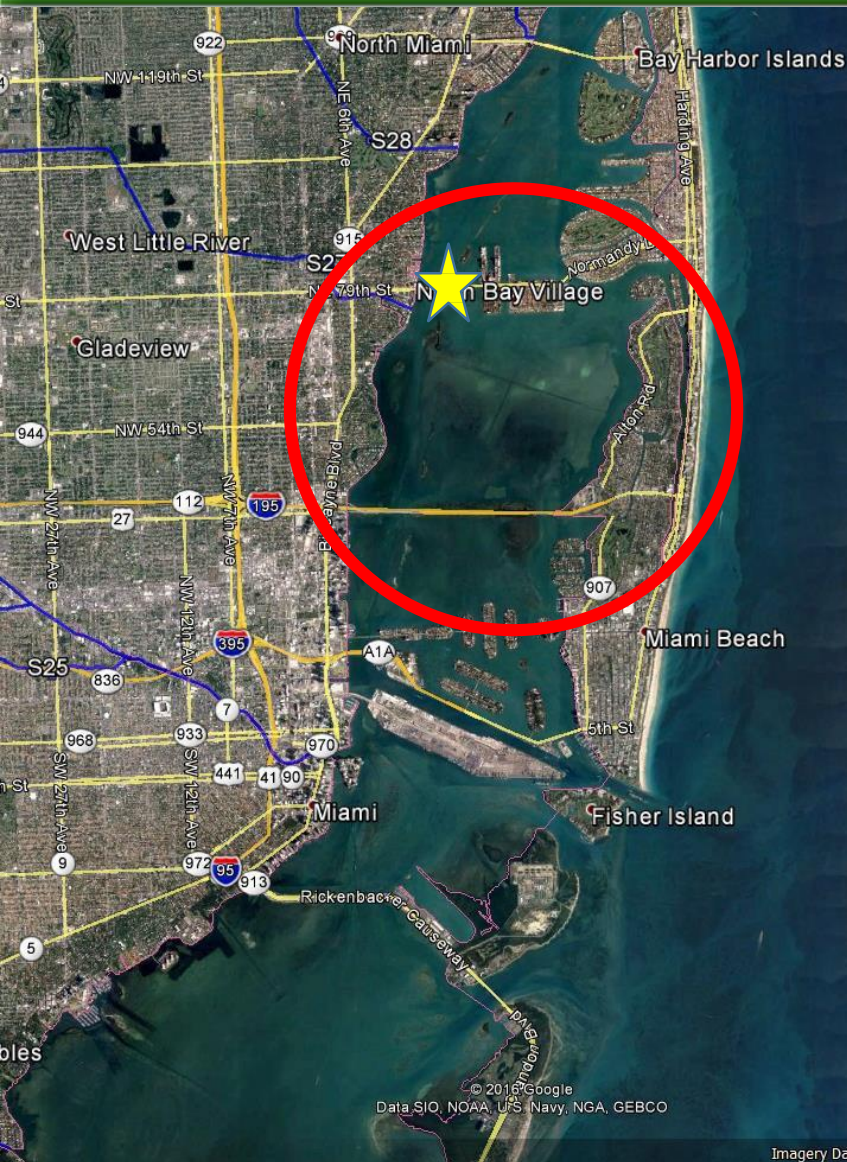
Biscayne Bay Aquatic Preserves (BBAP)

- Biscayne Bay Aquatic Preserve was “established for the purpose of preserving and enhancing Biscayne Bay . . . in an essentially natural condition” (258.397 FS)
 - “To preserve and promote indigenous life forms and habitats:
 - Sponges, soft corals and hard corals
 - Seagrasses, mangroves, mud flats
 - Marine reptiles
 - Game and non-game fish
 - Marine mammals
 - Tropical marine invertebrates
 - Birds
 - Shellfish.”
- (18-18.001 Florida Administrative Code)





Julia Tuttle Basin Seagrass



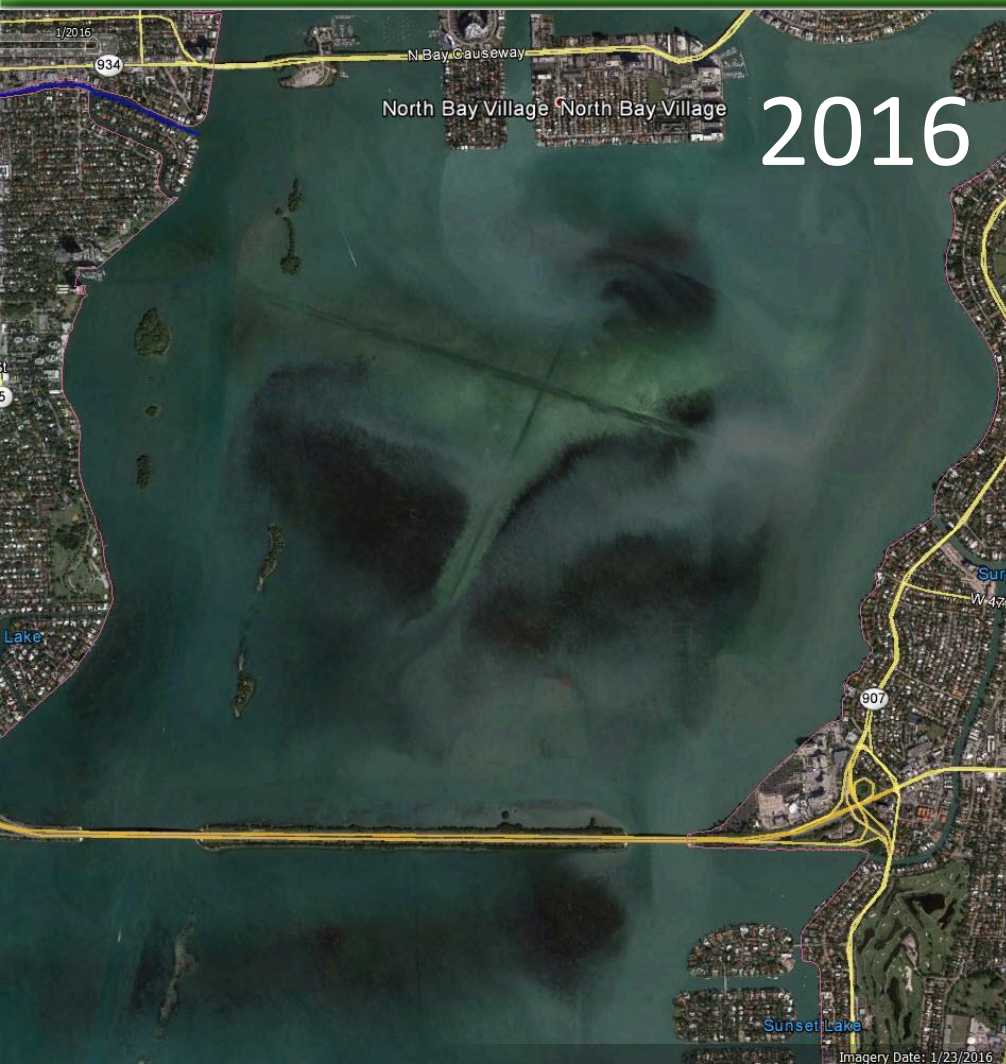


Julia Tuttle Basin Seagrass





Julia Tuttle Basin Seagrass





Julia Tuttle Basin Seagrass



Nov 2016



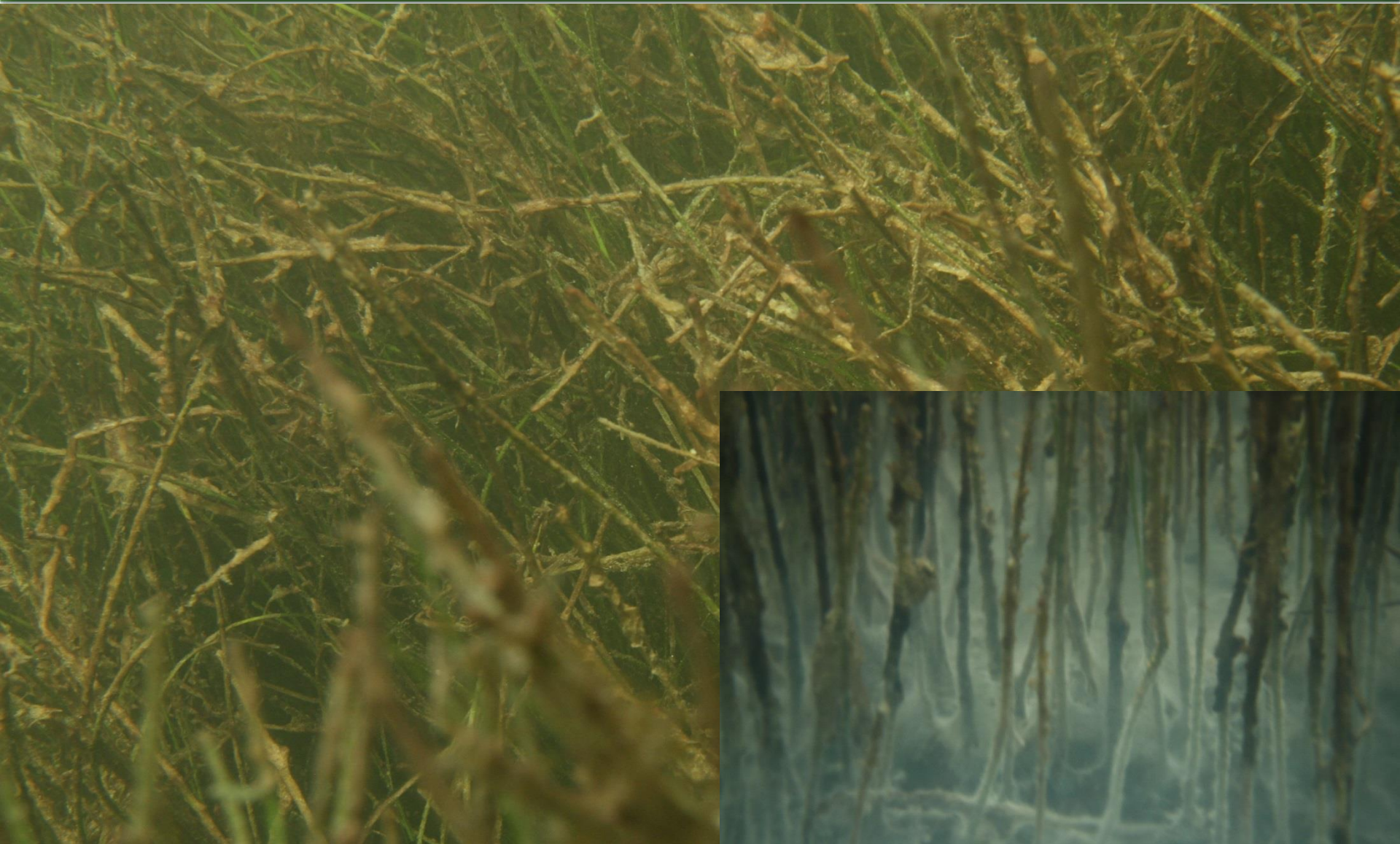
Julia Tuttle Basin Seagrass

May 2017

The die-off has accelerated with an overall loss of fish habitat and increase in turbidity from loose sediments



Julia Tuttle Basin Seagrass





Timeline

August 2014

- Ligia Collado-Vides (FIU) and John Watts (FDEP) report linking macroalgae bloom in Bay and canals near Coral Gables to anthropogenic nutrients

October 2015

- Miami-Herald article, “Dying seagrass and ‘yellow fog’ signal trouble for Florida Bay”
- BBAP observations of dense growth and cyanobacteria-epiphytic complex development in south central part of basin

February 2016

- Brie Cokos (Ocean Consulting) observation noting seagrass decline and cyanobacteria at site in eastern basin February 2015-February 2016



Timeline

- | | |
|------------|--|
| 2016 April | <ul style="list-style-type: none">• BBAP and Miami-Dade DERM staff planning meeting on macroalgae and nutrient sources to Bay. |
| 2016 July | <ul style="list-style-type: none">• Robert Carroll observations of loss of seagrass coverage in Tuttle basin, north of Rickenbacker, and near Matheson Hammock park. |
| 2016 Dec | <ul style="list-style-type: none">• BBAP observations of seagrass loss at previously dense sites in south central basin. |
| 2017 March | <ul style="list-style-type: none">• Penny Hall (FWRI) facilitated a site visit by FWC biologists and Bradley Furman (UVA) to investigate basin seagrass loss. |
| 2017 April | <ul style="list-style-type: none">• Biscayne Times article, "Follow the Fish." |



Timeline

April 2017

- Miami-Herald article, “Seagrass keeps dying in Biscayne Bay. Is it getting too sick to recover?”
- FWRI-UVA Site Visitation draft report suggests connection of previously dense seagrass growth to low canal freshwater input; die-off to higher flows starting in 2012 - salinity change stress also exacerbated by a 15cm sea level rise beginning in 2010



Construction Events

12/15/2014

Staging area

Watson Island Sponge Mitigation Site

Port of Miami Mitigation Site

Barge

Dec 2014





Construction Events



Jan 2016



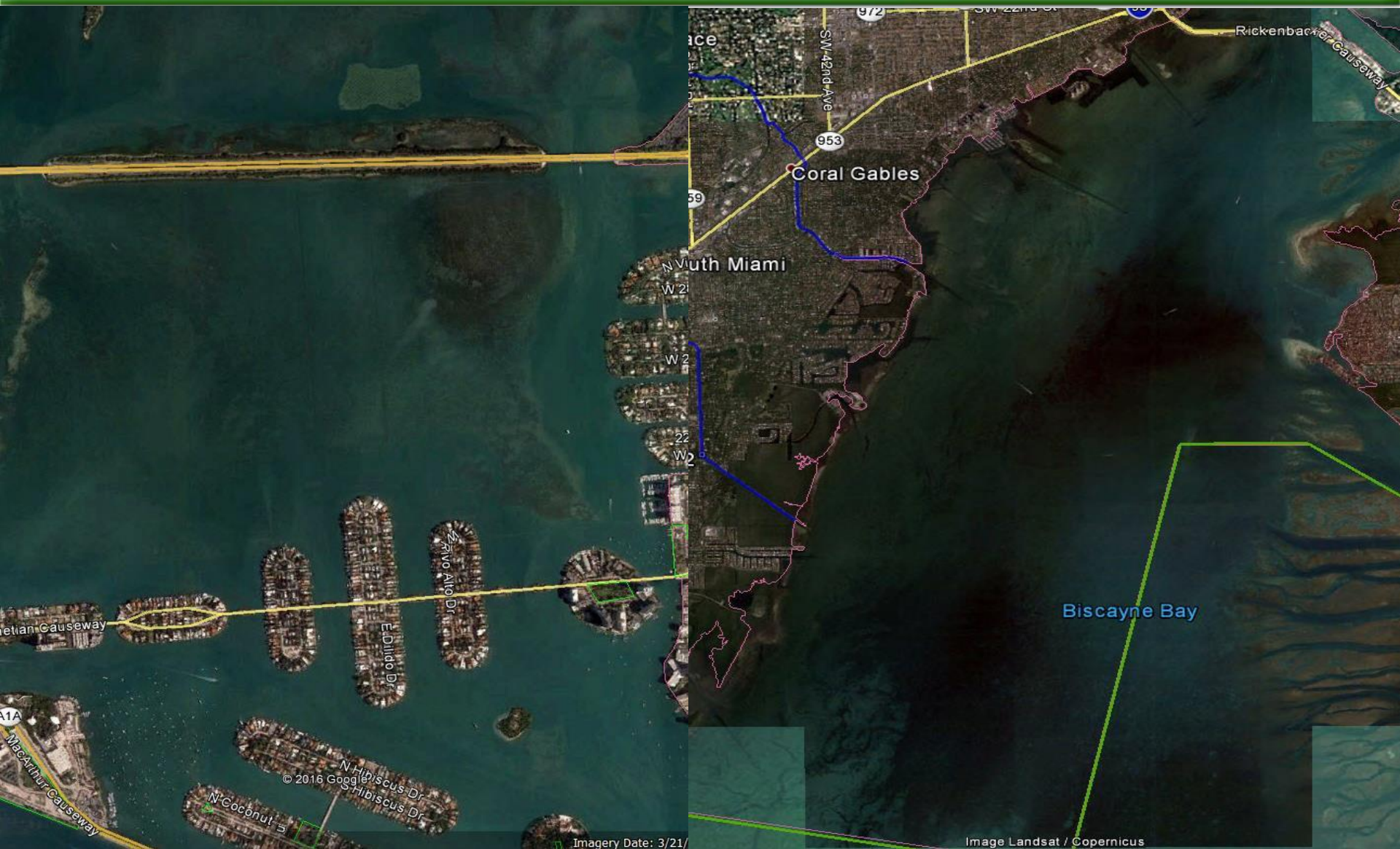
Construction Events



Feb 2016



Other Risks?





Questions?



FLORIDA'S AQUATIC PRESERVES

WATERS THAT WORK, PLAY, AND LIVE



Documents

- Sargent, F.J., T.J. Leary, D.W. Crewz, and C.R. Kruer. 1995. Scarring of Florida's seagrasses: assessment and management options. FMRI Tech. Rep. TR-1. Florida Marine Research Institute, St. Petersburg, Florida. 37 p. plus appendices.
- FWRI-UVA Site Visitation draft report
- Miami-Herald – “Seagrass keeps dying in Biscayne Bay. Is it getting too sick to recover?”
- Biscayne Times article, “Follow the Fish.”
- DERM draft report – “Evaluation of apparent seagrass die-off condition in Julia Tuttle Basin, North Biscayne Bay.”
- Ligia Collado-Vides (FIU) and John Watts (FDEP) BBAP funded reports –
 - “A search of links between water indicators and the persistence of the Anadyomene complex bloom in Biscayne Bay”
 - “A rapid assessment of the impact of the winter 2015-2016 El Niño rain anomaly on the prevalent Anadyomene species bloom in Biscayne Bay.”



Documents

- Miami-Dade County DERM report to EPA - “Surface Water Quality Monitoring: Results and Discussion For the Reporting Period June 21, 2015 to June 20, 2016. As per Part V.B. of the NPDES MS4 Permit No. FLS000003-003 Issued to Miami-Dade County and Specified Co-Permittees.”
- FWC SIMMS Report - Yarbrow, L. A., and P.R. Carlson, Jr., eds. 2016. Seagrass Integrated Mapping and Monitoring Program: Mapping and Monitoring Report No. 2. Fish and Wildlife Research Institute Technical Report TR-17 version 2. vi + 281 p.
- Miami-Herald - “Dying seagrass and ‘yellow fog’ signal trouble for Florida Bay.”
- Robert Carroll observations of loss of seagrass coverage in Tuttle basin, north of Rickenbacker, and near Matheson Hammock park.
 - <http://robbiecarroll.com/rob/Seagrass-Matheson.gif>
 - <http://robbiecarroll.com/rob/Seagrass-Rickenbacker-Causeway.gif>
 - <http://robbiecarroll.com/rob/Seagrass-Julie-Tuttle-Causeway.gif>